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XXXVI.—*Records and Descriptions of South African Grasshoppers of the Groups Arcypteræ and Scyllinæ.* By B. P. UVAROV, F.E.S., Assistant Entomologist, Imperial Bureau of Entomology.

THE present paper is the first of a series based on the collection of South African Acridians recently sent to the Imperial Bureau of Entomology for identification by the Division of Entomology, Pretoria, and made chiefly by Messrs. Ch. P. Lounsbury and J. C. Faure. In working out this collection it has been found practicable to include also the South African material of the British Museum Collection, where many unnamed accessions have recently accumulated. The number of new species and genera amongst the South-African grasshoppers has proved to be astonishingly large, and further collecting, especially of the smaller forms, must lead to the discovery of still more novelties; even amongst the large-sized ones new forms are not infrequent, which indicates that our knowledge of the South African Orthopterous fauna is still very inadequate.

THE GROUP *ARCYPTERÆ* \*.

There is only one African genus of this group—*Pseudoarcyptera*, Bol., with one species in it, *P. carvalhoi*, Bol.,

\* I. Bolivar, "Les Truxalinos del antiguo Mundo," Trab. Mus. Nac. Madrid, ser. Zool., Núm. 20, 1914, pp. 44 & 54.

but in the collection before me now there are two species which undoubtedly belong to the genus *Aulacoboturus*, Bol., known hitherto from India only; both these species are new and described below.

1. *Pseudoarcpytera carvalhoi*, Bol.

The species was described by I. Bolivar from Lourenço Marqucz, and a single male in the British Museum from the same locality agrees perfectly with the description. The venation of the elytra in this species is very much like that in *Prostethophyma cephalica*, Bol. (see fig. 1, A).

2. *Aulacobothrus africanus*, sp. n.

♂. Smaller, but less slender, than any of the known Indian representatives of the genus. Antennæ a little longer than the head and pronotum together. Head strongly reclinate; frontal ridge in profile perfectly straight, forming a rounded acute angle with the fastigium, distinctly sulcate and rugosely punctured throughout; its margins raised, not punctured, parallel, slightly convergent at the fastigium. Fastigium of the vertex rotundo-pentagonal, distinctly broader than long; its surface slightly concave; median keel low, rather thick, but irregular, interrupted in the middle of the fastigium, prolonged all across the occiput; lateral occipital keels distinct, but very irregular, not nearly reaching the pronotum; temporal foveolæ very distinct, much longer than broad, parallel, with the apex obliquely rounded. Pronotum rather compressed laterally, but without a constriction; its disc smooth, but dull in the prozona, and strongly rugosely punctured in the metazona, median keel running throughout the pronotum, distinctly raised, shining, cut just behind its middle by the third sulcus; lateral keels rather feeble and irregular, slightly convex and feebly convergent between the fore margin and the first sulcus, scarcely perceptible, subparallel between the first and second sulci, distinctly convex and not strongly divergent behind the latter, not reaching the hind margin; fore margin of the pronotum rounded; hind angle straight; lateral lobes very coarsely punctured, less so in the middle where the punctures are not dense, and two elongate spots near the upper margin are not punctured at all, smooth; lower margin of the lobes obtusely angulate behind its middle; their hind angle straight, rounded; the fore angle obtuse, rounded. Mesopleuræ and metapleuræ very coarsely

punctured. Elytra extending just a little beyond the hind knees; mediastinal area occupying the basal third of the fore margin, dilated in its middle, with a distinct false vein; scapular area occupying a little more than three-quarters of the fore margin, strongly dilated beyond its middle, with regular oblique reticulation; externo-median area distinctly dilated, the middle radial vein being slightly bisinuate; discoidal area extending far beyond the middle of elytra, narrow, sparsely but irregularly reticulate, with a very irregular false vein interrupted in many places; interulnar area much broader than the discoidal area, with sparse subparallel transverse venules. Hind femora rather slender, only slightly dilated basally. Supra-anal plate rotundato-triangular, slightly longer than its basal width, with margins convex. Cerci straight, extending a little beyond the apex of the supra-anal plate. Subgenital plate obtusely conical.

General coloration brownish. Head with a pale median fascia above, which is scarcely perceptible on the pronotum. Lateral lobes of the pronotum of a darker shade than its disc, somewhat blackish, except the lower fourth part, which is pale. Elytra hyaline, with veins brownish; the cells in the apical part with small brownish clouds. Wings hyaline, with a very faint yellowish tint at the base; apex feebly infumate. Hind femora on the outside unicolorous; the upper inner area with three blackish fasciæ, which extend also on to the upper outer area, but are there scarcely perceptible; the inside yellowish; the lower inner area orange-yellow; the knees entirely black inside and blackish with brownish lobes outside. Hind tibiæ brownish yellow, with the base and the apical half of the spines black. Abdomen reddish.

	♂ (type).
	mm.
Length of body .....	14
"    pronotum .....	3.5
"    elytra .....	11.5
"    hind femora .....	9
Maximal width of hind femora ..	2.5

The type is unique; it was taken at Bloemfontein, Orange Free State, 24. ii. 1918.

### 3. *Aulacobothrus* (?) *crassipes*, sp. n.

♂. Of the same size but slightly more robust than *A. africanus*, Uvar. (Antennæ in the type broken). Head

distinctly reclinate; frontal ridge in profile slightly convex above the middle ocellum, forming a widely rounded right angle with the fastigium of the vertex; its surface strongly punctured throughout, distinctly impressed below the middle ocellum, slightly convex between the antennæ; its margins slightly raised, not punctured, gradually and feebly divergent from fastigium to the clypeus. Fastigium of the vertex rotundato-pentagonal, distinctly longer than broad; its surface distinctly impressed; the median keel starts from its hindmost part and extends almost to the pronotum, very feeble throughout; the lateral occipital keels feeble, very irregular, distinctly divergent backwards. Temporal foveolæ distinctly but not much longer than broad, with the apex widely obliquely rounded. Pronotum only feebly compressed laterally, not constricted, rounded; the median keel strongly raised, cut by the third sulcus in its middle; lateral keels very feeble and irregular, distinctly convergent between the fore margin and the first sulcus, divergent behind the latter, on the metazona developed in its foremost part only; the disc of pronotum distinctly tectiform, dull, indistinctly rugulose throughout; hind angle straight; lateral lobes indistinctly rugulose throughout, except in the hind upper part of the metazona, which is densely and rather coarsely punctured; their lower margin is very widely rotundato-angulate behind the middle; their fore angle obtuse, hind angle straight, both widely rounded. Mesopleuræ and metapleuræ slightly rugulose. Elytra reaching the hind knees; the mediastinal area extending almost to the middle of the fore margin, dilated in its middle, with a very distinct, straight, false vein; scapular area occupying more than three-quarters of the fore margin, strongly dilated beyond its middle, with very oblique, sparse veinlets; externo-median area slightly dilated; the first and second radial veins perfectly straight; the discoidal area extends distinctly beyond the middle of the elytra, rather broad, its transverse veinlets thick, more regularly disposed than in *A. africanus*, the false vein well developed, straight; the interulnar area about as broad as the discoidal, with two rows of cells and an irregular, interrupted false vein. Hind femora short, thick, and dilated basally. Supra-anal plate triangular, distinctly longer than broad, with margins straight. Cerci straight, about as long as the supra-anal plate. Subgenital plate obtusely conical.

General coloration greyish brown. Head above ash-grey, with two irregular brown fasciæ adjoining the lateral

occipital keels externally; broad blackish postocular fasciæ running right across the lateral lobes of the pronotum, occupying their upper half; their lower parts, as well as the face and cheeks, ash-grey. Elytra feebly infumate throughout, with all veins and veinlets brown. Wings hyaline, with a scarcely perceptible yellowish tint; the apex distinctly infumate. Hind femora with the area externomedia whitish, gradually merging into yellow towards the apex; its lower carina with three elongate brown spots before the preapical ring, while the upper carina is blackened; the upperside grey, with two brown bands behind the middle and a yellow preapical ring extending all round the femur; the inside reddish, with two black bands; the outer lower sulcus orange-yellow; the inner lower sulcus red; the knees shining black all over, except the upper side, which is dull brown. Hind tibiæ bright red, with shining black condylus and apices of the spines, with a yellow subbasal ring and the apex, as well as the hind tarsi, pale olive. Abdomen reddish.

	♂ (type).
	mm.
Length of body .....	15
"    pronotum .....	3.5
"    elytra .....	12
"    hind femur .....	9
Maximal width of hind femur ..	3

The type is unique; it is from Bloemfontein, Orange Free State, 24. ii. 1918.

I am not quite sure whether this species actually belongs to the genus *Aulacobothrus* or is a member of the group Scyllinæ, near to *Phorenula*, since the inner lower spur of its only tibia is broken.

#### THE GROUP SCYLLINÆ.

Prof. I. Bolivar in his recent revision of the Old World Truxalinæ founded a new group for the genera characterised by the inner lower spur of the hind tibiæ being much longer than the inner upper one and straight, with the apex only curvate (see fig. 2, B); he called this group Prostethophymæ\*, but it is more reasonable to adopt for that group the name Scyllinæ, which has been long applied to the group of American genera characterised by the same shape of the tibial spurs.

This peculiar group seems to be fairly well represented in

\* *L. c.* pp. 44 & 48.

South Africa, whence three genera (i. e., *Prostethophyma*, *Berengueria*, and *Phorenula*) have been described by I. Bolivar, and two more are described in the present paper.

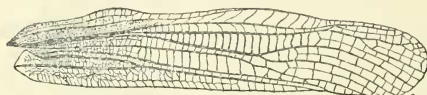
1. *Prostethophyma cephalica*, Bol. (Fig. 1, A.)

This species is represented in the British Museum by a good series of specimens taken by Dr. G. A. K. Marshall at Salisbury, Mashonaland; Bolivar's type belongs evidently to the same lot, and the Museum specimens proved to be entirely identical with the specimens in the Oxford collection designated by Bolivar himself as cotypes.

Fig. 1.



A



B

B Jobling

A, *Prostethophyma cephalica*, Bol.; B, *P. minor*, sp. n.

As I. Bolivar gives the dimensions of the female only, I think it useful to give a full table of dimensions, as follows:—

	♂.	♀.
	mm.	mm.
Length of body . . . . .	19	25
"  head . . . . .	3.5	4
"  pronotum . . . . .	4	5
"  elytra . . . . .	16	19
"  hind femur . . . . .	12.5	15.5

The dimensions are taken from cotypic specimens.

2. *Prostethophyma minor*, sp. n. (Fig. 1, B.)

♂. Smaller and more slender than *P. cephalica*, Bol. Antennæ extending well beyond the hind margin of the pronotum. Head very strongly reclinate; frontal ridge parallel throughout, scarcely narrowed at the fastigium, where it is strongly convex and sparsely punctured, while the rest is flat, with a very shallow impression below the middle ocellus and covered with strong, though not dense, impressed points; face strongly punctured, but less so than in *P. cephalica*; facial keels reaching the clypeus. Fastigium of the vertex as in *P. cephalica*; temporal foveolæ scarcely perceptible, indicated by puncturation. Median keel of the pronotum low and rather thick, interrupted in its middle by the typical sulcus; lateral keels feeble, distinctly (and more than in *P. cephalica*) convergent towards the first sulcus, strongly divergent behind, not reaching the hind margin, both front and hind part of each keel being straight; hind angle of the pronotum obtuse. Venation of the elytra much like that in *P. cephalica*, but differing in the following points: externo-median area more dilated, twice as broad as the scapular area and subequal in its width to the interlunar area, which is less dilated than in *P. cephalica*; discoidal area a little wider than in *P. cephalica*, and regularly transversely venulated except the very base.

Coloration as in *P. cephalica*, but paler. Lateral lobes of the pronotum with only an elongate pale callous spot below the middle, instead of a more narrow longitudinal callous line extending across the lobes as in *P. cephalica*. Elytra hyaline, spotless, with the apex strongly infumate and with a pale callous streak in the basal half of the scapular area. Wings as in *P. cephalica*. Hind femora on the outside greyish yellow, with brownish points along the upper carina; the upperside with very indistinct transverse fasciæ; the inside orange-red, with a blackish fascia before the apex and a blackish spot at the middle of the upper margin; the lower sulcus of the femora yellowish; the hind knees black. Hind tibiæ with black condylus, pale basal third, bright red in the rest.

♀ (paratype). Differs from that of *P. cephalica* by the smaller size and some characters in the venation of the elytra: the hind radial vein is more bent backwards and the externo-median area is therefore broader and with regular transverse reticulation; the discoidal area is regularly trans-

versely reticulated, without a false vein at all (or with but an irregular one in the basal half).

	♂ (type).	♀ (paratype).
	mm.	mm.
Length of body .....	16.5	20.5
„ head .....	3.5	3.5
„ pronotum ....	4	4.5
„ elytra .....	14	16
„ hind femora ..	10	13

The type and paratypes (3 ♂ ♂ and 2 ♀ ♀) were taken by Messrs. C. P. Lounsbury and J. C. Faure at Boshof, Orange Free State, 17-18. v. 1917.

*Key to the Species of the Genus Prostethophyma, Bol.*  
(Fig. 1, A & B.)

- 1 (2). ♂. The externo-median area of the elytra twice as broad as the scapular area and subequal in its width to the interulnar area; the discoidal area with regular transverse venulation.  
♀. The externo-median area broader than in the second species, regularly transversely venulated; the discoidal area regularly transversely reticulated, without a false vein..... *P. minor*, Uvar.
- 2 (1). ♂. The externo-median area less than twice as broad as the scapular area and much narrower than the interulnar area; the discoidal area irregularly reticulated.  
♀. The externo-median area narrower than in the preceding species, rather irregularly reticulated; the discoidal area with irregular reticulation and a more or less developed false vein..... *P. cephalica*, Bol.

3. *Phorenula cruciata*, Bol.

I refer to this species a series of specimens in the British Museum from Zomba, 2000-3000 ft., though I cannot be quite sure of my identification, because Bolivar's description contains nothing but colour characters, which are, according to his own remark, very variable; anyhow, the Zomba specimens agree with the description fairly well, and I do not feel justified in describing them as another species. The correct interpretation of Bolivar's unsatisfactory description of this species is rendered still more difficult because he compares it with *Ph. vittata*, which has never been described. Fortunately, I have received from the Oxford Museum one



specimen labelled by I. Bolivar as the cotype of *Ph. vittata*, which enables me to give a description of it below.

In the first place, however, I may make some remarks on the genus *Phorenula*. In I. Bolivar's opinion, the principal distinction between this genus and *Prostethophyma* is in the structure of the temporal foveolæ, which are supposed to be well developed, impressed, and perfectly margined in *Phorenula*, and imperfectly, or not all margined, shallow and punctured in *Prostethophyma*. My study of a rather long series of *Prostethophyma cephalica*, Bol., which is the type of the genus *Prostethophyma* and of *Pr. minor*, sp. n., enables me to conclude that this character is far from being constant in these species, not even being reliable as a specific character, and therefore quite useless for separating the genera. There remains, therefore, only one character for separating *Phorenula* from *Prostethophyma*, and that is in the venation of the elytra, especially in the shape of the discoidal area, which is equally wide throughout in *Phorenula* and narrowed apically in *Prostethophyma*; the difference is a very striking one in the case of the males, but the females of the two genera are extremely alike, and the question arises whether the genera *Phorenula* and *Prostethophyma* should not be better united. I prefer, however, to keep them separate in the meantime, till more species are made known (and I am sure that this group is represented in South Africa by a far greater number of species than is at present recorded), and especially because I have not yet had the opportunity of studying the genotype of *Phorenula*, for which I should take *Ph. dorsata*, Bol., as the first of the two species described under this genus.

#### 4. *Phorenula vittata*, sp. n.

1911. *Phorenula vittata*, I. Bol. in litt., Mém. Soc. Ent. Belg. xix. p. 82.

♂. Rather small for the genus, distinctly compressed laterally. Antennæ scarcely longer than the head and pronotum together, rather thick. Head strongly reclinate. Frontal ridge rather broad, parallel, feebly narrowed at the fastigium, where it is distinctly convex, while elsewhere it is flat, with the margins obtuse, not reaching the clypeus; surface of the ridge not densely punctured. Fastigium of the vertex perfectly rounded, slightly impressed, with a median keel beginning from its middle and running across the occiput, but not reaching the pronotum; the lateral

margins strongly convergent behind, and prolonged into two irregular lateral occipital keels; temporal foveolæ shallow, rhomboidal, with rounded angles. Pronotum laterally compressed but not constricted; median keel very well developed, rather thick and distinctly raised, interrupted by the hind sulcus just before the middle; lateral keels well developed, callous, distinctly convergent towards the first sulcus and strongly divergent behind it, deeply cut by all three sulci, not reaching the hind margin of the pronotum; fore margin distinctly convex; hind margin rectangular; surface of the disc uneven, with rather large impressed points, with callous rugosities between the sulci; lateral lobes strongly rugulose and punctured, with a callous irregular longitudinal keel in the middle, starting just behind the front margin, slightly sinuate in the middle and almost reaching the hind margin. Elytra extending a little beyond the hind knees; mediastinal area reaching the apex of the basal third, distinctly dilated beyond its middle, with a false vein; scapular area almost reaching the apex of the elytra, well dilated in the middle and strongly attenuate apically, with sparse oblique veins; externo-median area narrow, feebly widening towards the apex, with sparse transverse reticulation; discoidal area distinctly shorter than half the whole elytra, scarcely hyaline, with rather scarce but not parallel transverse venules, without a regular false vein; interulnar area a little broader than the discoidal, sparsely but irregularly reticulated, with a very irregular and only partly-developed false vein. Hind femora narrow, with the apical third attenuate.

General coloration light chocolate-brown. Occiput with two longitudinal rows of brown points. A broad castaneous-black fascia starts from the hind margin of the eyes and runs across the upper half of pronotal lobes; sides of mesonotum and metanotum also partly black; the lower part of the pronotum lobes pale, with brown punctures, and sharply separated from the dark upper part by the longitudinal keel, which is ivory-coloured; disc of the pronotum with brown points; lateral keels and a little interspace between them and the castaneous lateral fascia ivory-coloured. Elytra light fawn; scapular area with oblique venules partly brown; discoidal area shining black, with a few hyaline spots in the apical half; three irregular and not sharply-defined brownish spots along the middle of the apical half. Wings hyaline, scarcely infumate apically. Pectus and abdomen brownish beneath, with brown points; abdomen of the same colour above, but more strongly dotted with brown. Fore and

middle legs with dark grey and brown points and streaks. Hind femora with the area externomedia whitish, with a grey median longitudinal streak; upperside with more than the apical half brown, interrupted in the middle of the femur by a narrow pale fascia; the upper inner area with black base; inner median area blackened apically; lower areas buff; the knees spotted with black, more so on the inside. Hind tibiæ black from beneath, the colour gradually diluting towards the apex; the upperside is yellowish grey, dotted and spotted with brown; an incomplete black subbasal ring.

Female unknown.

	♂ (type). mm.
Length of body.....	15.5
„ head.....	3
„ pronotum ....	3.5
„ elytra .....	14
„ hind femora ..	10

The type is from Pretoria, iv. 1921 (*J. C. Faure*). A cotypic male in the Oxford collection, labelled by I. Bolivar as a cotype of *Ph. vittata*, I. Bol. (undescribed), is from Salisbury, Mashonaland, 5000 ft., 1899 (*G. A. K. Marshall*); it agrees with the type in all characters, but is in less good condition, which caused me to draw up the description from another specimen.

##### 5. *Phorenula marshalli*, sp. n.

1911. *Phorenula marshalli*, I. Bolivar in *litt.*, Mém. Soc. Ent. Belg. xix. p. 81.

♂. Antennæ a little longer than the head and pronotum together. Head strongly reclinate; frontal ridge flat, subparallel, slightly widened above the middle ocellus and feebly narrowed at the fastigium, coarsely punctured except at the base, at the apex, and along the margins, which are scarcely raised. Fastigium of the vertex regularly oval, scarcely shorter than broad, slightly impressed, with a feeble arched transverse sulcus, with margins perfectly rounded, incurved behind and emitting two irregular callous occipital keels; the median keel starting from the apex of the fastigium, but lowered in its middle, prolonged into an occipital keel, which is connected with the lateral keels by several irregular callous transverse ridges; temporal foveolæ rather well developed, longer than broad, elongato-trapezoidal, with rounded angles. Pronotum scarcely compressed laterally,

without a constriction; prozona a little shorter than metazona; median keel well developed, rather sharp; lateral keels rather feeble and irregular, subparallel between the fore margin and the first sulcus, feebly divergent between that and the third sulcus, and more strongly divergent and better developed in the metazona, reaching the hind margin; obtusangularly rounded; hind angle straight, with the sides slightly concave; lateral margins of the disc not coincident with the lateral keels, but indicated by a slightly raised line running outwardly and below the lateral keels; surface of the disc neither punctured nor rugulose, smooth but shining; lateral lobes rugulose throughout. Elytra extending a little beyond the hind knees; their venation very much like that of the above-described *Ph. vittata*, Uvar., but the discoidal area a little longer, though still not reaching the middle of the elytra, with an irregular false vein throughout; interular area with only one row of rather regular cells and without any trace of a false vein. Hind femora thick and short, with only apical fourth attenuate.

General coloration greyish fawn, with a brown and black design. Along the head and pronotum runs a paler median fascia, included between two velvety black fasciæ, which start from the sides of the fastigium, coincide with the lateral keels in the prozona, and run within these on the metazona, where the keels are pale. Face, sides of the head, lateral lobes of the pronotum, mesonotum, and metanotum unicolorous, indistinctly dotted with grey points. Pectus and the base of the abdomen of the general colour, though of lighter shade; the apical half of the abdomen reddish both above and beneath, but the apex itself yellowish. Fore and middle legs fawn, without any spots or points. Hind femora with three well-pronounced black fasciæ on the upperside, the hindmost of them being partly extended on the externo-median area; that area of the general coloration with a few black points along the lower carina; the inner side bright red, except the preapical ring, which is ivory and extends all round the femur; the knee brown above, black inside, black with brown lobes on the outside. Hind tibiæ bright red, with black base, a broad ivory subbasal ring, and black-tipped spines. Hind tarsi buff. Elytra with the basal half of the mediastinal area slightly darkened; discoidal field with a row of irregular brown spots; an oblique brownish fascia beyond the middle; the apical fourth infumate, with a faint indication of oblique fasciæ. Wings distinctly infumate at the apex and to the middle of the outer margin.

	♂ (type). mm.	♀ (paratype). mm.
Length of body .....	16	20.5
"  head .....	3	3.75
"  pronotum ....	3.5	4.5
"  elytra.....	14	18
"  hind femur ..	11	14

The type is from Salisbury, Mashonaland, 11. xi. 1905 (*G. A. K. Marshall*); four other paratypic males and two females are from the same locality; one female from Pretoria, iv. 1921 (*J. C. Faure*); one female from Morico, Transvaal, i. 1918.

The dimensions of the female given above are taken from the specimen labelled by I. Bolivar as a cotype of *Ph. marshalli*, Bol. (undescribed). This specimen and some others of the series are not so vividly coloured as the type; the black fasciæ on the head and pronotum may be very little developed or altogether wanting. The inside of the hind femora is sometimes orange-red. The interulnar area in the male is sometimes less regularly reticulated and with an indication of a false vein.

#### 6. *Phorenula gracilis*, sp. n.

♂. Smaller than any other known species. Antennæ extending a little beyond the hind margin of the pronotum. Frontal ridge flat, with very obtuse margins, feebly narrowed at the fastigium, with rather large but sparse puncturation. Fastigium of the vertex oval, with the apex somewhat acute, feebly impressed, with a very feeble, arched, transverse sulcus; its margins convergent behind and emitting irregular lateral occipital keels; median keel beginning behind the arched sulcus and prolonged on to the occiput, but not reaching the pronotum; temporal foveolæ fairly well developed, rotundato-rhomboidal, narrowed anteriorly and posteriorly. Pronotum neither compressed laterally nor constricted; median keel strongly raised, cut by the typical sulcus just before the middle; lateral keels well developed, distinctly convergent between the fore margin and the first sulcus and strongly divergent behind that sulcus, almost reaching the hind margin; actual lateral margins of the pronotal disc indicated less distinctly than in *Ph. marshalli*, Uvar.; fore margin of the pronotum rounded; hind angle straight; the surface of the disc neither rugulose nor punctured, smooth but not shining; lateral lobes coarsely punctured and rugulose. Elytra extending a little beyond the hind knees; their venation as in *Ph. marshalli*, but the

interulnar area is narrower, not broader than the discoidal area, with an irregular reticulation and an irregular false vein. Hind femora narrower than in *Ph. marshalli*, but broader than in *Ph. vittata*, Uvar., with the apical third attenuate.

General coloration brownish with black design; the latter much like that of *Ph. marshalli*. A light buff median fascia, included between the two dark castaneous fasciæ, runs across the head and pronotum; lateral keels of the latter pale throughout; lateral lobes brownish, variegated and dotted with brown. Elytra with a longitudinal median row of rectangular black spots along the discoidal area and almost to the apex. Wings with the apex but feebly infumate. Head beneath, pectus, and the base of the abdomen light olivaceous; the rest of the abdomen orange-reddish beneath and above. Fore and middle legs variegated with brown. Hind femora on the upperside with a basal brown spot and with the whole apical half brown, except a narrow transverse fascia just beyond the middle of the femur, and a narrow pale subapical ring; the externo-median area brownish, with numerous indistinct brown points, with a row of elongate black spots along the lower carina; the inside brownish with a faint reddish shade, with indistinct brown points; lower sulcus greyish olivaceous; the knees brown, with the upperside and lobes of a lighter shade. Hind tibiæ greyish olivaceous, with brown base and numerous indistinct brownish points; their spines black. Hind tarsi somewhat reddish.

♀ (paratype). Differs from the male by the far darker coloration, being almost black above, but lateral keels of the pronotum still pale; lateral lobes with the lower margin and a streak in the middle pale; their whole median part black. Elytra mostly shining black, with a median row of hyaline spots along the discoidal area; the base of the scapular area buff. Wings a little more infumate than in the male. Abdomen and the inner and lower side of the femora more orange-reddish. Hind tibiæ slightly reddening towards the apex.

	♂ (type). mm.	♀ (paratype). mm.
Length of body . . . . .	14	20
"    head . . . . .	2.5	3
"    pronotum . . . . .	3	4
"    elytra . . . . .	13	16
"    hind femora . . . . .	10	13

The male type and the only paratypic female are from Salisbury, Mashonaland, xi. 1905 (*G. A. K. Marshall*).

This species seems to be closely related to *Ph. cruciata*, Bol., and may prove even to be conspecific with it, but the question cannot be solved without the examination of Bolivar's type, and I prefer to give here a description of my specimens which will render it possible later to establish the synonymy. If my specimens are actually conspecific with *Ph. cruciata*, Bol., then the insect from Zomba mentioned above represents a distinct and undescribed species.

As I have not seen both of Bolivar's species of the genus *Phorenula*, I think it inadvisable to attempt to draw up a key to the species, which must be necessarily incomplete and therefore might only mislead.

#### PACHYCARUS, gen. nov.

Small and middle-sized grasshoppers, with a thick head, somewhat resembling in habitus and type of coloration certain species of the Palæartic genus *Dociostaurus*, Fieb.

Antennæ filiform, with the subbasal joints slightly compressed, but not at all dilated, in ♀ distinctly, in ♂ very much longer than the head and pronotum together. Head large and thick, distinctly prominent above the pronotum, in ♂ strongly, in ♀ distinctly reclinate. Frontal ridge in the male flat or feebly impressed, gradually widened towards the clypeus, almost reaching the latter; in the female it is more convex, with margins obtuse and disappearing shortly below the middle ocellus. Fastigium of the vertex distinctly sloping forwards, pentagonal, more or less distinctly marginate and impressed; temporal foveolæ visible from above, longer than wide, shallow, imperfectly marginated. Occiput without median carina. Eyes shortly ovoid; their height exceeds only a little their length and is subequal to the height of the infra-ocular part of cheeks. Pronotum short, rounded, feebly selliform; median keel very low, in prozona undeveloped or distinctly more feeble than in metazona; the first and second transverse sulci not reaching the median keel, which is cut by the typical sulcus in its middle; hind margin widely rounded; lateral lobes distinctly higher than long, narrowed downwards, with the lower margin rotundato-angulate on the middle, and both fore and hind angles obtuse, rounded. Prosternum with a low transverse swelling on its fore margin. Mesosternal lobes perfectly transverse, about twice as broad as long, with hind angles very widely rounded; interspace scarcely more narrow than the lobes, widened posteriorly.

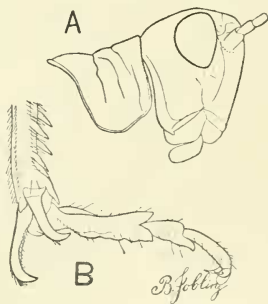


Metasternal lobes separated by a subquadrate interspace. Tympanum semi-open. Elytra developed, but not exceeding the hind knees; mediastinal area with a basal dilatation; scapular area dilated, especially in the males, extending almost to the apex of elytra; discoidal area reaching beyond the middle of elytra, parallel; interular area subequal in width to the discoidal. Wings hyaline, with normal venation. Hind femora short and thick; the knee-lobes rounded. Hind tibiae very slightly thickened apically, rounded above, bicarinate below, armed with 8-9 outer and 10-11 inner spines; the lower inner spur almost straight, almost as long as the first tarsal joint, slightly incrassate near the apex, which is short and recurved. Supra-anal plate of the male obtusely triangular, about as long as broad, with the sides slightly convex; cerci rounded, obtuse, subequal to the supra-anal plate; subgenital plate short, obtusely conical. Subgenital plate of the female much longer than broad, widened posteriorly; its hind margin with an obtuse triangular projection in the middle; valvæ of the ovipositor very short, thick, and obtuse.

Genotype: *Pachycarus stauronotus*, sp. n.

To the same genus belong two more South African species: one of them has been described by W. F. Kirby as

Fig. 2.



A, *Pachycarus stauronotus*, sp. n.; B, *P. medius*, sp. n.

*Heteropternis* (sic!) *pallido*, Kirby (Ann. & Mag. Nat. Hist. vol. x. no. 57, 1902, p. 241, no. 4), and the other, which has been recorded by Kirby as *Calliptamus minor*, Walk. (Trans. Ent. Soc. London, 1902, p. 240), has nothing to do with the genus *Calliptamus*, and is described below as *Pachycarus intermedius*, sp. n.

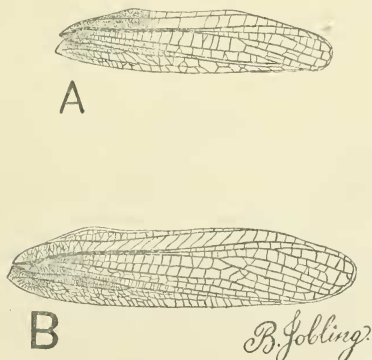


Key to Species of the Genus *Pachycarus*, Uvar.

(Figs. 2 & 3.)

- 1 (2). The sides of the fastigium (tempora) distinctly sloping sideways, narrow and occupied entirely by the temporal foveolæ, which are distinctly narrowed anteriorly and imperfectly margined below.
- 3 (4). ♂. Elytra without false veins in the discoidal and interulnar areas. Fastigium of the vertex distinctly longer than broad. (♀. Discoidal area irregularly reticulated without a false vein; the interulnar area with an irregular false vein. Fastigium of the vertex slightly longer than broad.) . . . *stauronotus*, sp. n.
- 4 (3). ♂. Elytra with false veins in the discoidal and interulnar areas. Fastigium of the vertex only a little longer than broad. (♀ unknown.) . . . . . *medius*, sp. n.
- 2 (1). ♀. The sides of the fastigium only feebly sloping sideways, broad, with broad obtuse margins; temporal foveolæ parallel, not narrowed anteriorly, obtusely but completely margined all around. The mediastinal, scapular, discoidal, and interulnar areas with false veins. . . . . *pallidus* (Kirby).

Fig. 3.



A, *Pachycarus stauronotus*, sp. n.; B, *P. medius*, sp. n.

7. *Pachycarus stauronotus*, sp. n. (Figs. 2, A; 3, A.)

♂. The smallest of the three known species. Antennæ reaching well beyond the middle of the abdomen. Head

longer and thicker than the pronotum, strongly reclinate and very prominent above. Frontal ridge with the margins closely approximate at the fastigium; facial keels reaching the clypeus. Pronotum very finely and closely punctured in the prozona, and more distinctly in the metazona, which is a little shorter than the prozona; median keel scarcely perceptible on the prozona and more distinct, though still very low, on the metazona. Elytra a little longer than the abdomen; mediastinal area with but very feeble basal dilatation and reaching to the apical fourth of the fore margin; scapular area fairly dilated, extending a little beyond the end of the mediastinal, with sparse transverse nerves; externo-median area gradually widening towards the apex, but distinctly narrower than the scapular area; discoidal area fairly broad, sparsely, though not very regularly transversely, reticulated; interulnar area a little narrower than the discoidal, sparsely and still less regularly reticulated, without a regular false vein.

General coloration greyish brown, with grey and whitish design. Head brown above and whitish beneath. Pronotum brown above, with a very faint indication of a pale cross-like design (as in *Dociostaurus genei*, Ocsk.); lateral lobes with a reniform ivory spot beneath and a little behind their middle, with the fore angle white and the lower margin whitish. Elytra with a row of rather large quadrangular brownish spots along the middle, with the base of mediastinal area and the whole of the anal area brownish. Wings hyaline, with the principal veins in the fore part brownish. Sternum and abdomen bright yellow beneath; upperside of the abdomen bright red. Fore and middle legs spotted and fasciated with grey. Hind femora bright yellow beneath and on the inside; the externo-median area whitish, with a row of several small brown spots along the lower margin; superno-median area brownish, with a grey spot in the middle, another smaller and less distinct grey spot adjoining the pale base, and the third one still less distinct, just before the pale preapical ring; the median and preapical spots are also prolonged into the superno-interior area; knees black. Hind tibiae pale greyish, with black base and a brown streak in the basal third beneath; the spines brown. Hind tarsi bluish white.

♀ (paratype). Antennæ extending well beyond the hind margin of the pronotum, but not reaching the middle of the abdomen. Head a little longer and distinctly thicker than the pronotum, very prominent dorsally. Facial keels not reaching the clypeus. Prozona of the pronotum with the

median keel a little more distinct than in the male. Elytra reaching the apex of the abdomen, but a little shorter than the hind femora; mediastinal area feebly dilated basally, with an incomplete false vein; scapular and externo-median areas dilated about in the same degree as in the male; discoidal area fairly dilated, with two rows of cells and an irregular false vein; interulnar area slightly narrower than the discoidal, with the cells in two rows and an irregular false vein. General coloration more varied than in the male; face dotted with brown; head with a pale median line and two postocular fasciæ of the same colour; the pale cross on the pronotum more distinct. Elytra with more numerous brown and black spots. Pectus and abdomen greyish yellow beneath; upperside of the abdomen red, but not so bright as in the male. Hind femora with three distinct dark brown transverse spots on the upperside, and with three indistinct oblique greyish streaks along the middle of the externo-median area; knees grey, with pale lobes dotted with brown. Hind tibiæ as in the male, but their base is grey instead of black.

	♂ (type).	♀ (paratype).
	mm.	mm.
Length of body . . . . .	13	18
"    head . . . . .	3.25	3.5
"    pronotum . . . . .	2.75	3.25
"    elytra . . . . .	8.5	12
"    hind femora . . . . .	9.5	11

The type and several paratypes are from Petrusville, 23. i. 1919; other paratypes are from Boshof, 17-18. v. 1917; Paardeburg, 31. v. 1917; and Dealesville to Bloemfontein, 19. v. 1917. The series consists of 10 ♂♂ and 9 ♀♀.

The morphological characters are rather constant in the whole series, but the size and coloration vary. Thus, the above-described female is rather small, since there are specimens measuring 22 mm. in length of body. The general coloration is sometimes more brownish or even ochraceous, with more or less numerous dark spots; the cross-like figure on the pronotum is always more pronounced in females than in males, but also varies in its distinctness. The abdomen in some females is not reddish above. On the whole, the species is extremely like *Doclostaurus genei*, Oesk., but easily distinguished from it by the spurs of the hind tibiæ and by the form and position of temporal foveolæ.

8. *Pachycarus medius*, sp. n. (Figs. 2, B; 3, B.)

♂. Larger and more robust than *P. stauronotus*, Uvar. Antennæ reaching to the middle of the abdomen. Head about as long as the pronotum and only a little thicker than it, strongly reclinate and distinctly prominent upwards. Frontal ridge at the fastigium narrowed, but not as strongly as in *P. stauronotus*. Facial keels reaching the clypeus. Metazona of the pronotum rugulose; median keel or prozona hardly perceptible, on metazona well developed though low. Elytra a little longer than the abdomen and almost reaching the hind knees; mediastinal area with the basal dilatation more prominent than in *P. stauronotus*; discoidal area more dilated than in that species, with an irregular but complete false vein; interulnar area distinctly narrower than the discoidal area, with an irregular false vein; anal area with an indication of a false vein.

General coloration reddish brown. Face ash-grey. Pronotum with a very faint indication of a paler cross; lateral lobes with a rather indistinct oblique dark streak, their lower part somewhat paler than the rest. Sternum buff; abdomen yellow beneath and red above. Elytra and wings as in *P. stauronotus*. Hind femora yellow beneath, reddish elsewhere, especially so on the inside: the upperside with three grey transverse fasciæ; knees black. Hind tibiæ muddy yellow, with brown spines. Hind tarsi brownish.

	♂ (type).
	mm.
Length of body.....	17.5
"    head.....	4
"    pronotum.....	4
"    elytra.....	12.5
"    hind femora....	12

The type is from Pretoria (*W. L. Distant*); another paratype male is labelled Zoutpansberg (*Kuessner*), and differs from the type in the reddish shade of its coloration, the hind tibiæ being red. Both were identified by W. F. Kirby as *Calliptamus minor*, Walk., and recorded by him as females (*Trans. Ent. Soc. London*, 1902, p. 240).

9. *Pachycarus pallidus* (Kirby).

1902. *Heteropternis pallida*, Kirby, *Ann. & Mag. Nat. Hist.* vol. x. no. 57, p. 241, no. 4.

This is the largest and most robust species of the genus, easily separated from the other two by the structure of the

tempora. As its coloration has been already described by Kirby, I will give here only a few principal morphological characters which are entirely lacking in Kirby's description.

♀. Head subequal to the pronotum in length, but distinctly thicker, feebly reclinate. Frontal ridge convex, disappearing just below the median ocellus, very feebly narrowed at the apex; facial keels not nearly reaching the clypeus. Pronotum with the median keel developed throughout, though on the prozona it is somewhat less sharp than on the metazona. Elytra scarcely reaching the end of the abdomen and much shorter than the hind femora; mediastinal area very distinctly dilated, with a well-developed false vein; scapular area well dilated, with an irregular false vein; discoidal area rather broad, with an irregular but rather thick false vein; interulnar area much narrower than the discoidal, with a false vein; anal area with a well-developed, thick false vein.

As for the coloration, it has been described by Kirby fairly correctly, though I should call the general coloration ochraceous rather than light brown, and the design on the pronotum and hind femora is not blackish but brown; there is on the disc of pronotum a faint indication of a pale cross, not mentioned by Kirby. The hind tibiae are dark yellow; the phrase in Kirby's description—"hind femora with black-tipped spines"—means, of course, not femora but tibiae.

The type of this species (from Figtree, Barberton) is still unique.

#### FAUREIA, gen. nov. (Fig. 4.)

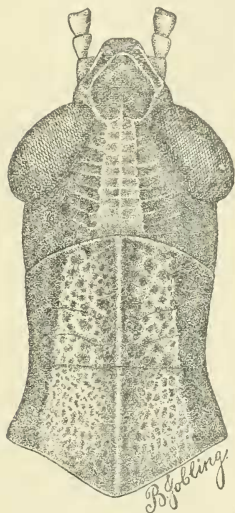
Body distinctly compressed laterally. Antennæ with the joints 3-7 distinctly flattened, feebly dilated, and almost smooth; the rest of the antennæ composed of cylindrical joints, strongly and densely punctured; the antennæ in ♂ slightly longer, in ♀ a little shorter than the head and pronotum together. Head strongly reclinate; frontal ridge with the sides obtuse, perfectly parallel, slightly approximated at the fastigium; fastigium of the vertex forming a rounded angle with the frontal ridge, nearly horizontal, pentagonal with the apex rounded, in ♂ longer than broad, in ♀ as long as broad, with an arched transverse impression; its margins raised, obtuse, in ♂ feebly, in ♀ more distinctly convergent backwards, not prolonged into occiput; a feeble median carinula begins from behind the arched impression and runs towards pronotum, but does not reach the latter; temporal foveolæ well seen from above, distinctly though not deeply

impressed, marginate, more than twice as long as broad, with the upper and lower margins straight and parallel, hind angles straight, the apex obliquely rounded; eyes oval, with the fore margin straight, their height exceeding the height of the infra-ocular part of cheeks more than twice. Pronotum strongly compressed laterally; its disc nearly flat, slightly widened posteriorly and forming straight though rounded angles with the lateral lobes; the median keel well expressed throughout, rather thick, interrupted in about the middle by the typical sulcus; no distinct lateral keels, which are replaced by the smooth, straight lines along the lateral margins of the strongly punctured disc; fore margin of the disc very widely rounded, slightly prominent; hind margin rounded in the female and rotundato-angulate in the male; lateral lobes a little higher than long, feebly narrowed downwards, with the lower margin obtusely angulate in the middle, its hind part being horizontal, slightly excavate, and the fore part obliquely ascendant. Elytra fully developed, in both sexes extending a little beyond the hind knees, hyaline throughout; mediastinal area with the basal dilatation; scapular area strongly dilated in the male and less so in the female; discoidal area parallel, with an irregular and incomplete false vein; interulnar area in the male a little dilated, without false vein, in the female only slightly wider than the discoidal area, with a false vein. Wings with normal venation, coloured at the base. Prosternum with a large, though feebly prominent, transverse swelling. Mesosternal lobes in ♂ only slightly, in the ♀ distinctly transverse; their inner margins strongly rounded; hind angles rounded; hind margins nearly perpendicular to the sides of the sternum; mesosternal interspace much longer than its narrowest width, strongly widened anteriorly and posteriorly. Metasternal lobes in both sexes contiguous; their median suture long, straight. Tympanum semi-open. Hind femora only feebly incrassate basally; their apical third attenuate. Hind tibiae distinctly widened towards the apex, armed with 8-9 outer and 10-11 inner spines; the lower inner spur almost straight, half as long again as the upper inner one and subequal to half the first tarsal joint. Supra-anal plate of the male much longer than broad, lance-shaped, with small lateral angles near the apex; cerci straight, slightly compressed laterally, a little longer than the supra-anal plate; subgenital plate obtusely conical. Upper valves of the ovipositor without, the lower with rounded teeth; the apices of all valves strongly curved, sharp; subgenital plate of the female much longer than it is broad, widened

towards the apex, which is rounded with a triangular median projection.

Genotype: *Faureia rosea*, sp. n.

Fig. 4.



*Faureia rosea*, sp. n.

10. *Faureia rosea*, sp. n. (Fig. 4.)

♂. Frontal ridge between the antennae slightly convex, with a few tiny impressed points; from a little above the median ocellus downwards it is impressed and coarsely punctured; the lowest part is again almost smooth and flat. Occiput feebly transversely rugulose. Pronotal disc coarsely punctured, especially on the metazona, where the points are smaller but more dense than on the prozona; the middle part of the latter is without puncturation but not shining; lateral lobes rugulose throughout, with three oblong dull impressions in the fore upper part. Elytra with the mediastinal area reaching a little beyond the basal third of the fore margin, with a dilatation in the middle and a well-developed false vein; scapular area extending to the apical

fourth, strongly dilated, with rather dense and irregular reticulation at the base and with a few sparse oblique venules in the apical two-thirds; externo-median area feebly dilated, with sparse transverse venules; discoidal area narrow, slightly narrowed and feebly bent backwards apically, irregularly and rather densely reticulated in the basal two-thirds, where an irregular false vein is perceptible, while the apical third is entirely hyaline, with a few transverse venules; interular area about twice as broad as the discoidal, with sparse, not very regular, transverse venules; axillar area with a false vein.

General coloration buff. A darker fascia runs from the hind margin of the eye across the upper half of the lateral lobes of pronotum and the sides of mesonotum and metanotum. Wings with the basal half rose, the colour gradually fading outwardly. Hind femora pale, unicolorous, with ash-grey semilunar spots on the knees. Hind tibiae pale sanguineous; their base pale, with a dark streak on the upperside; the spines white with the apical half black. Hind tarsi sanguineous.

♀ (paratype). Frontal ridge less distinctly impressed than in the male. Mediastinal area of the elytra reaching the base of the apical third; discoidal area a little broader than in the male, with the irregular false vein almost reaching its apex; interular area only a little broader than the discoidal, with two rows of rather large but irregular cells, separated by a false vein reaching the apex. In other respects agrees with the male type, but without the dark lateral fascia on the head and pronotum; this fascia is not constant in both sexes and the general coloration is sometimes with a greenish shade.

	♂ (type).	♀ (paratype).
	mm.	mm.
Length of body . . . . .	19	23
"    pronotum . . . . .	4	5
"    elytra . . . . .	17	20
"    hind femora . . . .	12	14

The male type and 9 paratypic specimens of both sexes were taken in April 1921 near Pretoria by Mr. J. C. Faure, and I have great pleasure in naming this very distinct new genus after that entomologist. There is also one male in the British Museum, taken also at Pretoria by Mr. W. Distant and named by Mr. F. Kirby as *Anthermus granosus*, Stal (this is one of three specimens recorded in Trans. Ent. Soc. London, 1902, p. 101, no. 99, the two others being named correctly).